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Columbia River Channel Improvement Study—Summary of Draft Report

The Study

The draft Integrated Feasibility Report and Environmental Impact Statement documents the results of a feasibility study for proposed improvements to the Columbia and lower Willamette rivers navigation channel. The channel is currently authorized at a 40-foot depth and generally a 600-foot width. The study area covers the lower 11.6 miles of the Willamette River and 103.5 miles of the Columbia River, from rivermile 3 to 106.5, below Vancouver, Wash.

The feasibility study was authorized in August 1989 and was initiated in 1994. It is co-sponsored by the U.S. Army Corps of Engineers and seven lower Columbia River ports: Astoria, St. Helens, and Portland in Oregon, and Longview, Kalama, Woodland, and Vancouver in Washington. The U.S. Environmental Protection Agency (EPA), Region 10, in Seattle, Wash., is a cooperating agency for this report.

The purpose of the study is to evaluate improvements to the deep-draft transport of goods in the navigation channel and to provide ecosystem restoration for fish and wildlife habitats. The need for navigation improvements has been driven by the steady growth in waterborne commerce and the use of larger, more efficient vessels. Benefits would result from reducing transportation costs by allowing deep-draft vessels to carry more tonnage, and by reducing vessel delays.

Alternatives Considered

Alternatives for improving deep-draft navigation were formulated and evaluated on the basis of technical, economic, social, and environmental criteria. The alternatives considered included: no action, the non-structural alternative of upgrading the existing river stage forecasting system, regional port options to locate deep-draft facilities closer to the mouth of the Columbia River, and structural (channel deepening). The channel deepening alternatives were 41 feet, 42 feet, or 43 feet. Channel deepening alternatives were limited to a maximum of 43 feet by the study's authorizing legislation.

The non-structural and channel deepening alternatives were found to have benefit-to-cost ratios above unity (more benefit than cost). Deepening the channel to 43 feet, and using the least cost disposal plan, was found to maximize net benefits and is presented as the proposed action. The fully funded cost estimate for the proposed action, including the ecosystem restoration component, is $175,498,000.

Construction and Disposal Plans

Construction of the proposed 43-foot channel would require 19.1 million cubic yards (mcy) of dredging and the removal of 220,000 cubic yards of basalt rock and 450,000 cubic yards of gravel and boulders from the Columbia and Willamette rivers. The depth and width of the dredge cut would vary with location, but the existing channel alignment would be unchanged.

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Specific environmental and engineering criteria were used to screen disposal sites. The Least Cost disposal plan for the 43-foot channel utilizes upland, inwater and ocean disposal sites.

A total of 31 upland disposal sites are included in the plan, with a total land area of 1,895 acres and a disposal volume of 64.5 mcy. Fifteen of these sites, totaling 1,123 acres, are included in the no action alternative. In-water disposal, in and adjacent to the navigation channel, would occur throughout the length of the channel. There would be about 28 mcy of inwater disposal in the first 20 years. The greatest use of in-water disposal would be between Columbia rivermiles 27 and 42. Ocean disposal would be used for over 6 mcy of construction material and more than 4 mcy of maintenance material. The local sponsors have proposed an alternative disposal plan that would replace seven of the Least Cost upland disposal sites with seven more costly sites. The seven alternate sites could provide for future commercial and industrial use of the disposal material.

Impacts

The deepening would result in minor impacts to aesthetics, recreation, and land use. No cultural resources would be impacted by dredging or disposal actions. The Least Cost disposal alternative would result in the direct loss of 398 acres of agricultural lands, 66 acres of riparian habitat, and 38 acres of wetland habitat. The Sponsor's plan results in the direct loss of 193 acres of agricultural lands, 73 acres of riparian habitat, and 30 acres of wetland habitat. Wildlife mitigation actions are recommended to offset the habitat losses in both plans.

In addition to the above land use impacts there would be other physical impacts from the channel deepening. There would be a very slight increase in estuarine salinity under low river flow conditions. No significant biological impacts would result from the predicted salinity increase. Estuarine circulation would essentially be unchanged. Water quality impacts would be a slight increase in turbidity during construction. Long term, the turbidity impacts may actually decrease, as less material would be disposed of in in-water locations. Shoreline erosion from currents, wind waves, and ship wake is expected to remain near current levels.

Based on EPA and Corps criteria, sand in the Columbia River channel is suitable for unconfined in-water and upland disposal. Some material in the Willamette River has been found to be potentially unsuitable for unconfined inwater disposal. Biological tests would be conducted and any material unsuitable for unconfined inwater disposal would be placed in deep areas in the Willamette River and capped with clean material.

Biological impacts would include: impacts to benthic habitat, mostly to less productive areas over 35 feet deep; some impacts to white sturgeon by inwater disposal; increased impacts to marine organisms from ocean disposal; no impacts to most of the 22 ESA listed wildlife species, except for minor impacts to Columbian white-tailed deer and bald eagles; and impacts to ESA listed salmon and steelhead are expected to be the same as that of the existing maintenance dredging program. Conservation measures will be implemented to offset impacts to Columbian white-tailed deer and bald eagles.

An ecosystem restoration component is also proposed for implementation. Its scope consists of restoring the hydraulic connection between the Columbia River and Shillapoo Lake and fisheries habitat restoration measures.